

Rice County

Estimated Economic Impact of Agriculture, Food, and Food Processing Sectors

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Using the most recent IMPLAN data available (2014) adjusted for 2016, 16 agriculture, food, and food processing sectors were analyzed to determine their overall contribution to the Rice County economy.¹

These 16 sectors have a total direct output of approximately **\$302.9 million** and support **936.2 jobs** in Rice County. Running the model for all 16 sectors simultaneously produces the following results:

Agriculture, Food, and Food Processing Sector Contribution to Overall Rice County Economy						
Impact Type ²	Employment	% Employment	Total Value Added ³	Total Value Added % of Gross Regional Product ⁴	Output ⁵	Output % of Gross Regional Product
Direct Effect	936.2	17.32%	\$108,335,385.65	28.02%	\$302,860,715.61	78.33%
Indirect Effect	222.0	4.11%	\$16,367,195.54	4.23%	\$29,495,693.46	7.63%
Induced Effect	167.6	3.10%	\$11,720,571.68	3.03%	\$20,881,116.04	5.40%
Total Effect	1,325.8	24.53%	\$136,423,152.87	35.28%	\$353,237,525.11	91.36%

As shown in the above table, agriculture, food, and food processing sectors support **1,325.8 jobs**, or **24.53%** of the entire workforce in the county. These sectors provide a total economic contribution of approximately **\$353.2 million**, roughly **91.36 % of the economy**.

Another metric used to calculate the importance of sectors in an economy is their value added as a percentage of GRP. Total value added by the 16 agriculture, food, and food processing sectors is approximately **\$136.4 million**, or **35.28% of the GRP**. This indicates that personal income, business income, and taxes generated by these sectors account for **35.28% of the total economy**.

The following tables document the overall summary numbers of the model, top industries affected by employment and output, and a listing of all industries that were analyzed.

1 Article on building a contribution analysis in IMPLAN that avoids double counting:

http://www.implan.com/index.php?option=com_content&view=article&id=660%3A660&catid=253%3AKB33&Itemid=70

2 Direct, indirect, and induced effects sum together to estimate the total economic contribution in the state. **Direct effects** capture the contribution from agricultural and food products. **Indirect effects** capture the economic benefit from farms and agricultural businesses purchasing inputs from supporting industries within the state. **Induced effects** capture the benefits created when employees of farms, agricultural businesses, and the supporting industries spend their wages on goods and services within the state.

3 Value added = labor income + indirect business taxes + other property type income.

4 GRP = final demand of households + governments expenditures + capital + exports - imports - institutional sales.

5 Output = intermediate inputs + value added.

In the top ten agriculture, food, and food processing sectors by employment, the beef cattle ranching and farming, including feedlots and dual-purpose ranching and farming sector is the top employer with **487.2 employees**. This table also shows the amount of jobs that are created by the agriculture industry in Rice County.

Top Ten Sectors by Employment		
Sector	Total Employment	Total Output
Beef cattle ranching and farming, including feedlots and dual-purpose ranching and farming	487.2	\$94,356,193.34
Farm machinery and equipment manufacturing	102.7	\$59,220,079.02
Grain farming	97.7	\$56,257,139.26
Dry pasta, mixes, and dough manufacturing	58.0	\$38,622,351.04
Wholesale trade	57.2	\$12,552,043.49
Support activities for agriculture and forestry	50.4	\$3,308,828.55
Landscape and horticultural services	44.7	\$3,305,944.13
All other crop farming	35.7	\$4,372,714.19
Animal production, except cattle and poultry and eggs	35.5	\$5,327,691.07
Spice and extract manufacturing	35.4	\$19,104,333.62

The beef cattle ranching and farming, including feedlots and dual-purpose ranching and farming sector directly contributes approximately **\$94.4 million** to the Rice County economy. The table below also shows the amount of revenue that is generated in other industries by having a strong agriculture industry.

Top Ten Sectors by Output		
Sector	Total Employment	Total Output
Beef cattle ranching and farming, including feedlots and dual-purpose ranching and farming	487.2	\$94,356,193.34
Farm machinery and equipment manufacturing	102.7	\$59,220,079.02
Grain farming	97.7	\$56,257,139.26
Dry pasta, mixes, and dough manufacturing	58.0	\$38,622,351.04
Spice and extract manufacturing	35.4	\$19,104,333.62
Oilseed farming	9.2	\$17,435,534.13
Wholesale trade	57.2	\$12,552,043.49
Owner-occupied dwellings	0.0	\$6,232,927.52
Animal production, except cattle and poultry and eggs	35.5	\$5,327,691.07
All other crop farming	35.7	\$4,372,714.19

Below is a summary of all agriculture data with employment levels and output level. These values can tell how many jobs are represented by each agriculture, food, and food processing sector and the output they contributed to the Rice County economy.

All Agriculture, Food, and Food Processing Sectors		
Sector	Total Employment	Total Output
Oilseed farming	9.2	\$17,435,534.13
Grain farming	97.7	\$56,257,139.26
Greenhouse, nursery, and floriculture production	1.7	\$239,063.91
All other crop farming	35.7	\$4,372,714.19
Beef cattle ranching and farming, including feedlots and dual-purpose ranching and farming	487.2	\$94,356,193.34
Dairy cattle and milk production	0.8	\$253,972.41
Poultry and egg production	3.7	\$2,518,701.31
Animal production, except cattle and poultry and eggs	35.5	\$5,327,691.07
Commercial logging	1.0	\$49,741.87
Bread and bakery product, except frozen, manufacturing	5.3	\$541,600.32
Frozen cakes and other pastries manufacturing	0.3	\$47,104.38
Dry pasta, mixes, and dough manufacturing	58.0	\$38,622,351.04
Spice and extract manufacturing	35.4	\$19,104,333.62
Farm machinery and equipment manufacturing	102.7	\$59,220,079.02
Veterinary services	17.1	\$1,208,551.59
Landscape and horticultural services	44.7	\$3,305,944.13

All 105 counties in Kansas have an IMPLAN model and an agriculture, food, and food processing contribution summary. These values do not factor in the retail environment of food sales. Food retail is important, but in order to provide the most accurate picture of what production agricultural and processing contributes to Rice County, the retail sector was omitted.

****Calculations Including Ethanol Production****

Estimated Impact of Agriculture, Food, Food Processing and Ethanol Production on Rice County Economy

In 2014, Rice County produced **60 million gallons** of ethanol worth an estimated **\$140.4 million** dollars. The impact on page one includes by-products from ethanol plants such as distiller's dried grain with solubles (DDGS), but do not account for the economic activity generated by ethanol fuel production. Namely, this is because ethanol fuel production is included in sector 165, other basic organic chemical manufacturing, which encompasses more than ethanol production and was not modeled in the original scenario. Therefore, utilizing the full sector value would inflate the results. If we were to include sector 165 in the analysis with a direct value of \$140.4 million, the total contribution to agriculture increases to **\$509.2 million**, represents **27.67% of the jobs**, and increases total value added to **\$154.4 million** in Rice County.

Agriculture, Food, Food Processing, and Ethanol Sector Contribution to Overall Rice County Economy						
Impact Type²	Employment	% Employment	Total Value Added³	Total Value Added % of Gross Regional Product⁴	Output⁵	Output % of Gross Regional Product
Direct Effect	1,000.1	18.51%	\$118,339,158.36	30.61%	\$443,260,716.76	114.64%
Indirect Effect	304.4	5.63%	\$22,753,262.00	5.88%	\$42,223,027.22	10.92%
Induced Effect	190.7	3.53%	\$13,336,495.57	3.45%	\$23,759,968.00	6.15%
Total Effect	1,495.2	27.67%	\$154,428,915.93	39.94%	\$509,243,711.98	131.71%

10 Direct, indirect, and induced effects sum together to estimate the total economic contribution in the state. **Direct effects** capture the contribution from agricultural and food products. **Indirect effects** capture the economic benefit from farms and agricultural businesses purchasing inputs from supporting industries within the state. **Induced effects** capture the benefits created when employees of farms, agricultural businesses, and the supporting industries spend their wages on goods and services within the state.

11 Value added = labor income + indirect business taxes + other property type income.

12 GRP = final demand of households + governments expenditures + capital + exports - imports - institutional sales.

13 Output = intermediate inputs + value added.